УДК 004.8

5.2.2. Математические, статистические и инструментальные методы экономики (физико-математические науки, экономические науки)

АВТОМАТИЗИРОВАННЫЙ СИСТЕМНО-КОГНИТИВНЫЙ АНАЛИЗ ЧАСТОТНОГО РАСПРЕДЕЛЕНИЯ ПУБЛИКАЦИЙ АВТОРА ПО НАУЧНЫМ СПЕЦИАЛЬНОСТЯМ ВАК РФ НОВОЙ НОМЕНКЛАТУРЫ

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Цель работы состоит в разработке интеллектуальной системы автоматизированной классификации публикаций по научным специальностями ВАК РФ новой номенклатуры. Для достижения этой цели применен известный метод искусственного интеллекта: автоматизированный системно-когнитивный анализ и его программный инструментарий – интеллектуальная система «Эйдос». В результате работы создано интеллектуальное облачное Эйдос - приложение, размещенное в полном открытом бесплатном доступе, которое может быть с успехом применено всеми желающими для достижения поставленной цели со своими текстами. В работе приводится подробный численный пример достижения поставленной цели, основанный на реальных публикациях автора в Научном журнале КубГАУ за 20 лет его работы: с 2003 по 2023 годы. Актуальность работы обусловлена тем, что для новой номенклатуры научных специальностей ВАК РФ интеллектуальная система классификации публикаций, находящаяся в полном открытом бесплатном доступе, создана впервые

Ключевые слова: АВТОМАТИЗИРОВАННЫЙ СИСТЕМНО-КОГНИТИВНЫЙ АНАЛИЗ, АСК-АНАЛИЗ, ИНТЕЛЛЕКТУАЛЬНАЯ СИСТЕМА «ЭЙДОС», СПЕЦИАЛЬНОСТИ ВАК РФ НОВОЙ НОМЕНКЛАТУРЫ, КЛАССИФИКАЦИЯ, НАУЧНЫЕ РАБОТЫ, ПУБЛИКАЦИИ

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UDC 004.8

5.2.2. Mathematical, statistical and instrumental methods of economics (physical and mathematical sciences, economic sciences)

AUTOMATED SYSTEM-COGNITIVE ANALYSIS OF THE FREQUENCY DISTRIBUTION OF THE AUTHOR'S PUBLICATIONS ON SCIENTIFIC SPECIALTIES OF THE HIGHER ATTESTATION COMMISSION OF THE RUSSIAN FEDERATION OF THE NEW NOMENCLATURE

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The purpose of the article is to develop an intelligent system of automated classification of publications on scientific specialties of the HAC RF of a new nomenclature. To achieve this goal, a well-known artificial intelligence method has been applied: automated system–cognitive analysis and its software tools - the intelligent system called "Eidos". As a result of the work, an intelligent cloud-based Eidos application has been created, placed in full open free access, which can be successfully used by everyone to achieve their goal with their texts. The work provides a detailed numerical example of achieving this goal, based on the author's real publications in the Scientific Journal KubSAU for 20 years of his work: from 2003 to 2023. The relevance of the work is due to the fact that for the new nomenclature of scientific specialties of the HAC RF, an intelligent classification system of publications, which is in full open free access, was created for the first time

Keywords: AUTOMATED SYSTEM-COGNITIVE ANALYSIS, ASC-ANALYSIS, INTELLIGENT SYSTEM "EIDOS", SPECIALTIES OF THE HAC RF OF NEW NOMENCLATURE, CLASSIFICATION, SCIENTIFIC PAPERS, PUBLICATIONS

CONTENT

1. Introduction

The formation of an academic and scientific school in a certain scientific specialty of the Higher Attestation Commission of the Russian Federation (HAC RF) of the new nomenclature involves the creation of an effective system of scientific publications in this field of science. In addition, when scientists are included in dissertation councils, editorial councils of scientific journals, as well as when they are involved as experts and reviewers, the question arises whether these scientists have publications in the relevant fields of science in which they are supposed to work.

Therefore, it is of interest to form the frequency distribution of articles, monographs and textbooks of a certain specific author in the specialties of the HAC RF of the new nomenclature. This paper provides a numerical example of achieving the set goal, based on real publications of the author of this work in the Scientific Journal of KubSAU for 20 years of his work: from 2003 to 2023 and several other publications. This issue is considered in more detail in the works [13, 14] of the source [1].

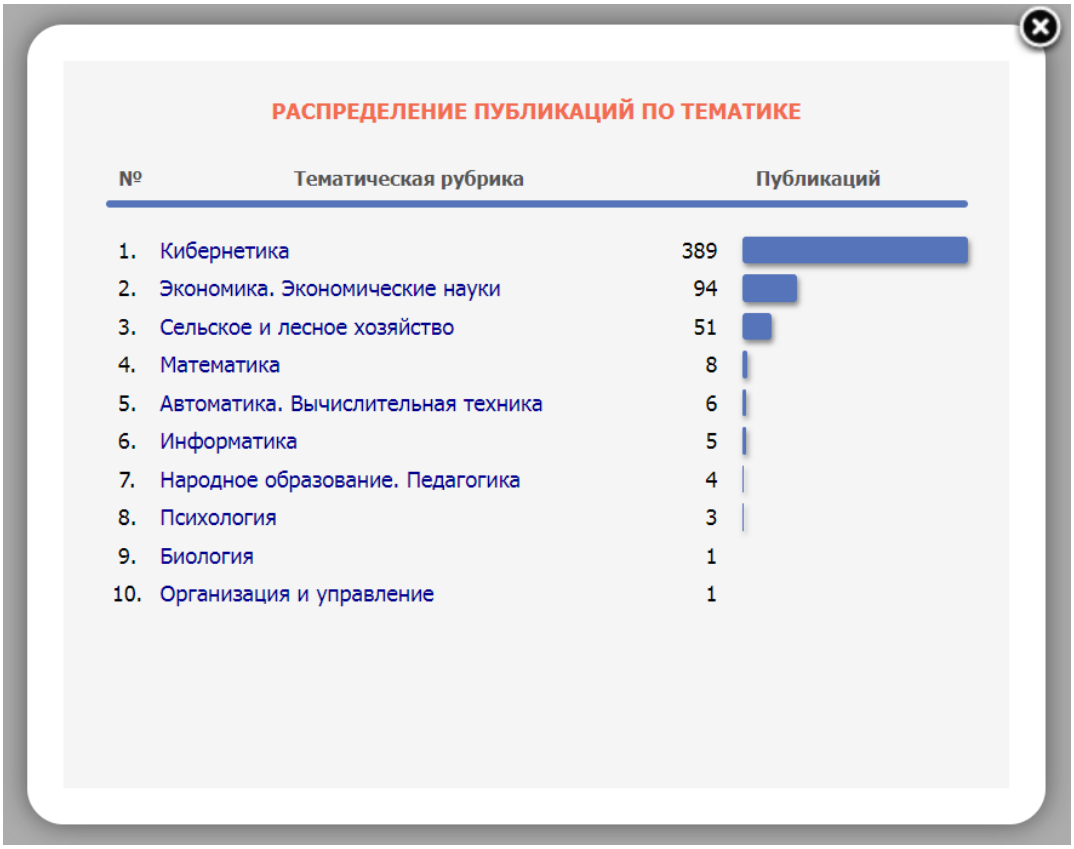
Traditionally, the answer to this question is given by experts who do it in a non-formalized way based on their intuition, experience, and professional competence.

The disadvantages of the traditional hike are:

- a certain subjectivity and incomparability of expert assessments;
- high costs of labor and time of experts, the high cost of their work;
- the danger of insufficient consideration of scientific specialties that are little known to experts (systemic problems);

– difficulties in finding and attracting experts to work due to their small number and very high workload.

Another option for solving this problem is to refer to the corresponding RSCI: https://elibrary.ru/author_profile.asp?id=123162 (picture 1):



Drawing1– Distribution of publications by subject in the RSCI

However, the RSCI software solves this problem not by analyzing the texts of publications and comparing them with the passports of scientific specialties of the HAC RF of the new nomenclature, but on the basis of information about the publication belonging to one or another scientific direction provided by the author of this publication himself. In fact, this is no different from the method of expert assessments, if the author of the publication is considered an expert. This means that the shortcomings of the method of expert assessments listed above also occur in this case, which cannot suit us.

The problem and purpose of this article are formulated in the works [13, 14] of the source [1].

2. Goals, objectives and methods

The goals and objectives of the methods used in the article are formulated in the works [13, 14] of the source [1].

3. Results

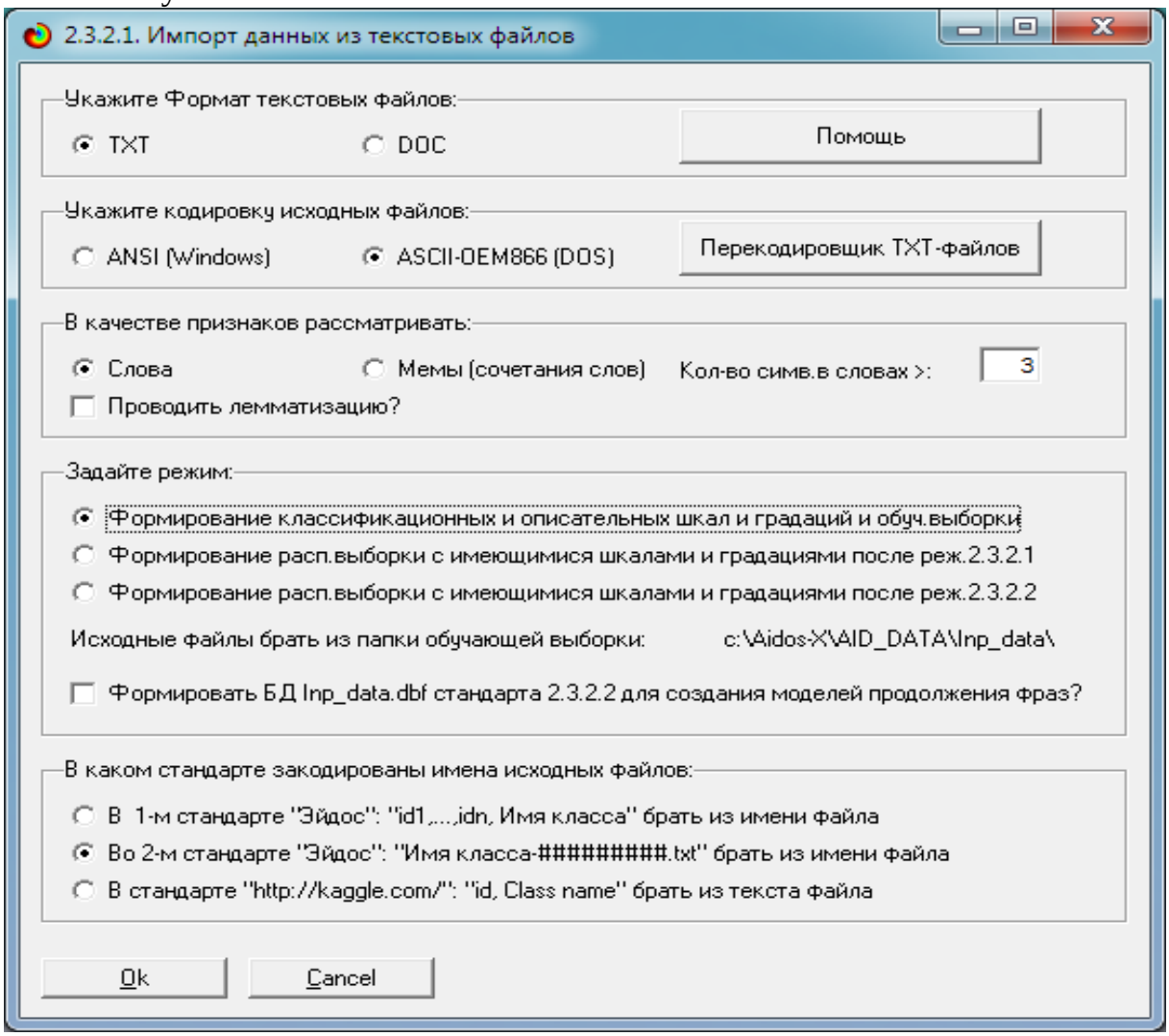
Task-1. Cognitive structuring of the subject area

The results of solving Task 1 are described in detail in [13, 14] of the source [1].

Task-2. Formalization of the subject area

The results of solving Task 2 are described in detail in [13, 14] of the source [1].

Applied API-2.3.2.1 (Figure 2), (Table 1) which provides data entry into the Eidos system from text files.



Drawing2– Screen control form API-2.3.2.1 of the Eidos system with parameters for formalizing the subject area

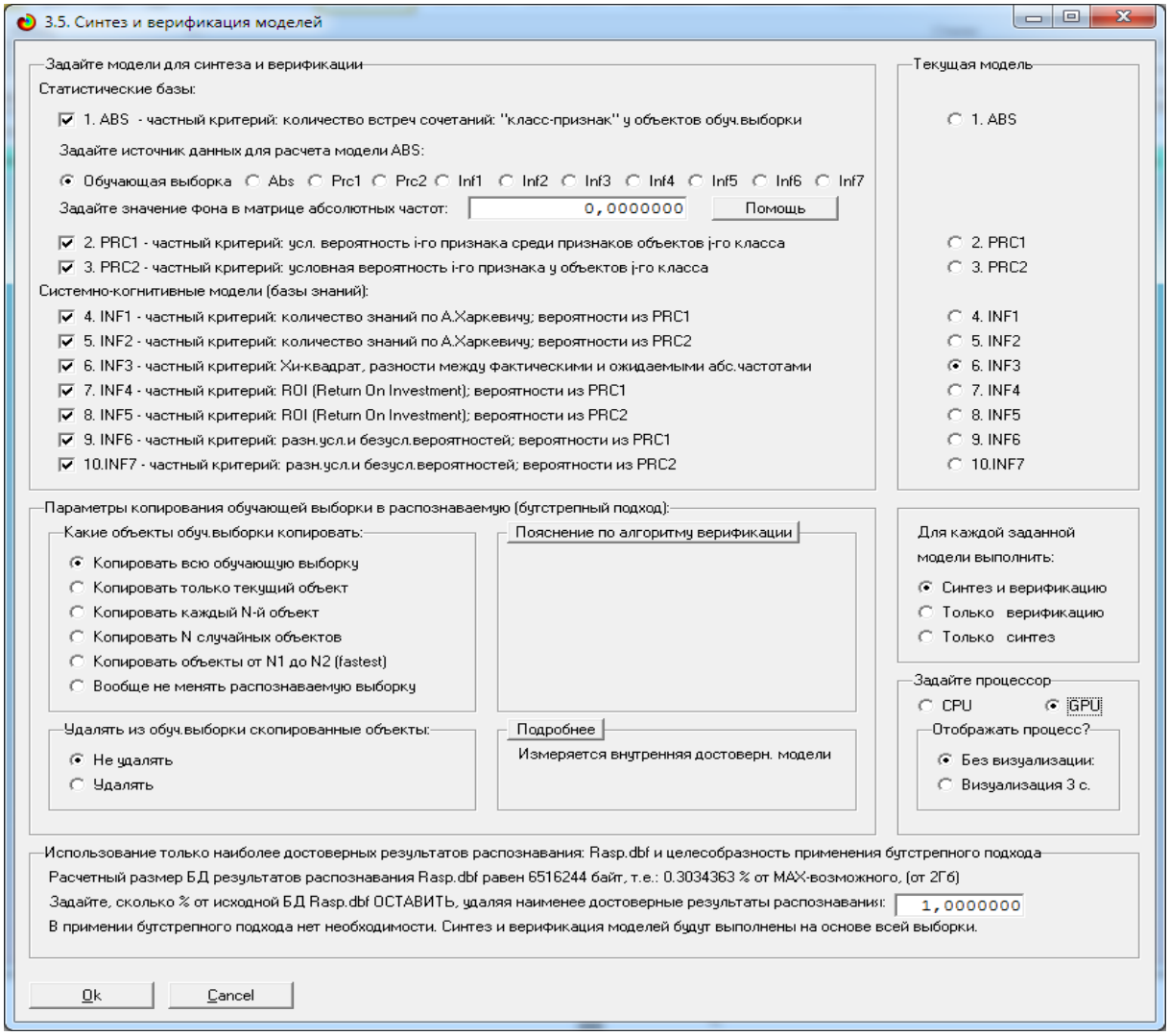
Table1– Classification scales and gradations of scientific specialties of the HAC RF (fragment)

Code	Name of the scientific specialty of the HAC RF
1	CLASS-1.1.1. Real, complex and functional analysis
2	CLASS-1.1.10. Biomechanics and bioengineering
3	CLASS-1.1.2. Differential Equations and Mathematical Physics
7	CLASS-1.1.6. Computational Mathematics
8	CLASS-1.1.7. Theoretical mechanics, machine dynamics
9	CLASS-1.1.8. Solid Mechanics
10	CLASS-1.1.9. Mechanics of liquid, gas and plasma
eleven	CLASS-1.2.1. Artificial intelligence and machine learning
12	CLASS-1.2.2. Mathematical modeling, numerical methods and software packages
13	CLASS-1.2.3. Theoretical computer science, cybernetics
14	CLASS-1.2.4. cyber security
15	CLASS-1.3.1. Space physics, astronomy (branch of science - technical)
16	CLASS-1.3.1. Space physics, astronomy (branch of science - physical and mathematical)
17	CLASS-1.3.10. Physics of low temperatures (branch of science - technical)
18	CLASS-1.3.10. Physics of low temperatures (branch of science - physical and mathematical)
19	CLASS-1.3.11. Physics of semiconductors (branch of science - physical and mathematical)
20	CLASS-1.3.12. Physics of magnetic phenomena (branch of science - technical)
21	CLASS-1.3.12. Physics of magnetic phenomena (branch of science - physical and mathematical)
22	CLASS-1.3.13. Electrophysics, electrophysical installations (branch of science - technical)
23	CLASS-1.3.13. Electrophysics, electrophysical installations (branch of science - physical and mathematical)
24	CLASS-1.3.14. Thermal physics and theoretical heat engineering (branch of science - technical)
25	CLASS-1.3.14. Thermal physics and theoretical heat engineering (branch of science - physical and mathematical)

Task-3. Synthesis of statistical and system-cognitive models

The results of solving problem 3 are described in detail in [13, 14] of the source [1].

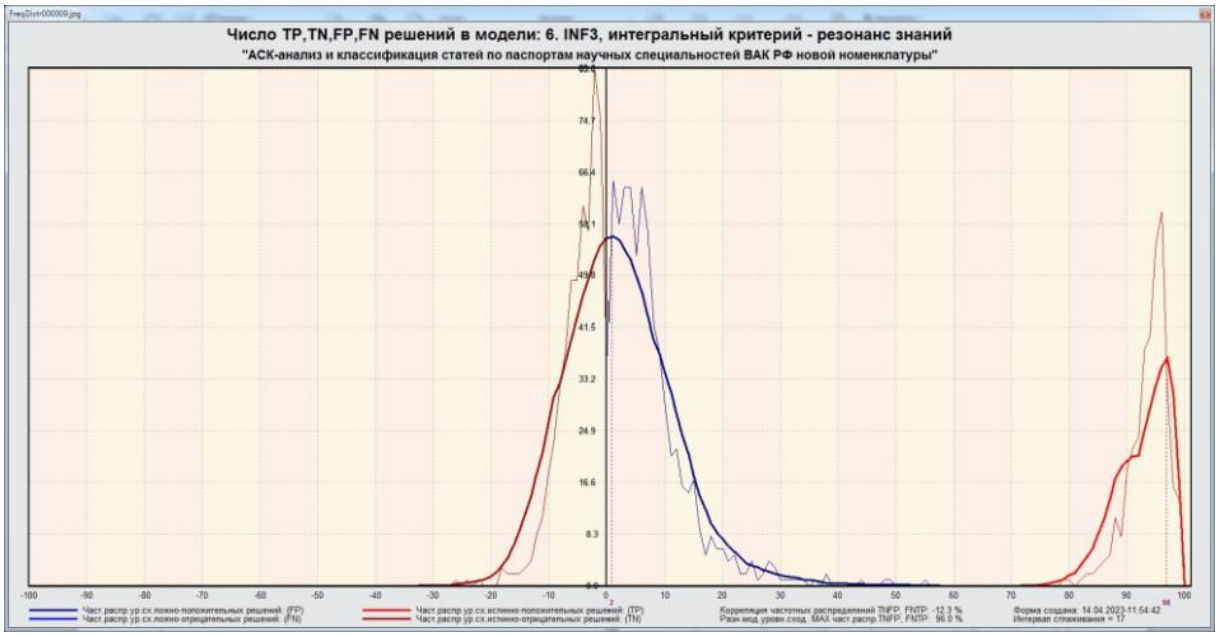
Synthesis and verification of models in the Eidos system is carried out in mode 3.5 (Figure 3).



Drawing3– Screen form of the mode of synthesis and verification of models

Task-4. Model Verification

Model verification, i.e. assessment of their reliability, carried out by classifying the passports of scientific specialties for these specialties. Figure 4 shows that decisions about not belonging to a class are always true, and decisions about belonging are both true and false, and it is clear which decisions with what level of similarity it makes sense to pay attention to (these are decisions with a similarity level above 70%), and which ones it would be correct to ignore as most likely unreliable (Figure 4) [1].



Drawing4– Frequency distributions of the number of positive and negative true and false solutions depending on the level of similarity of training sample objects with classes in the Inf3 model

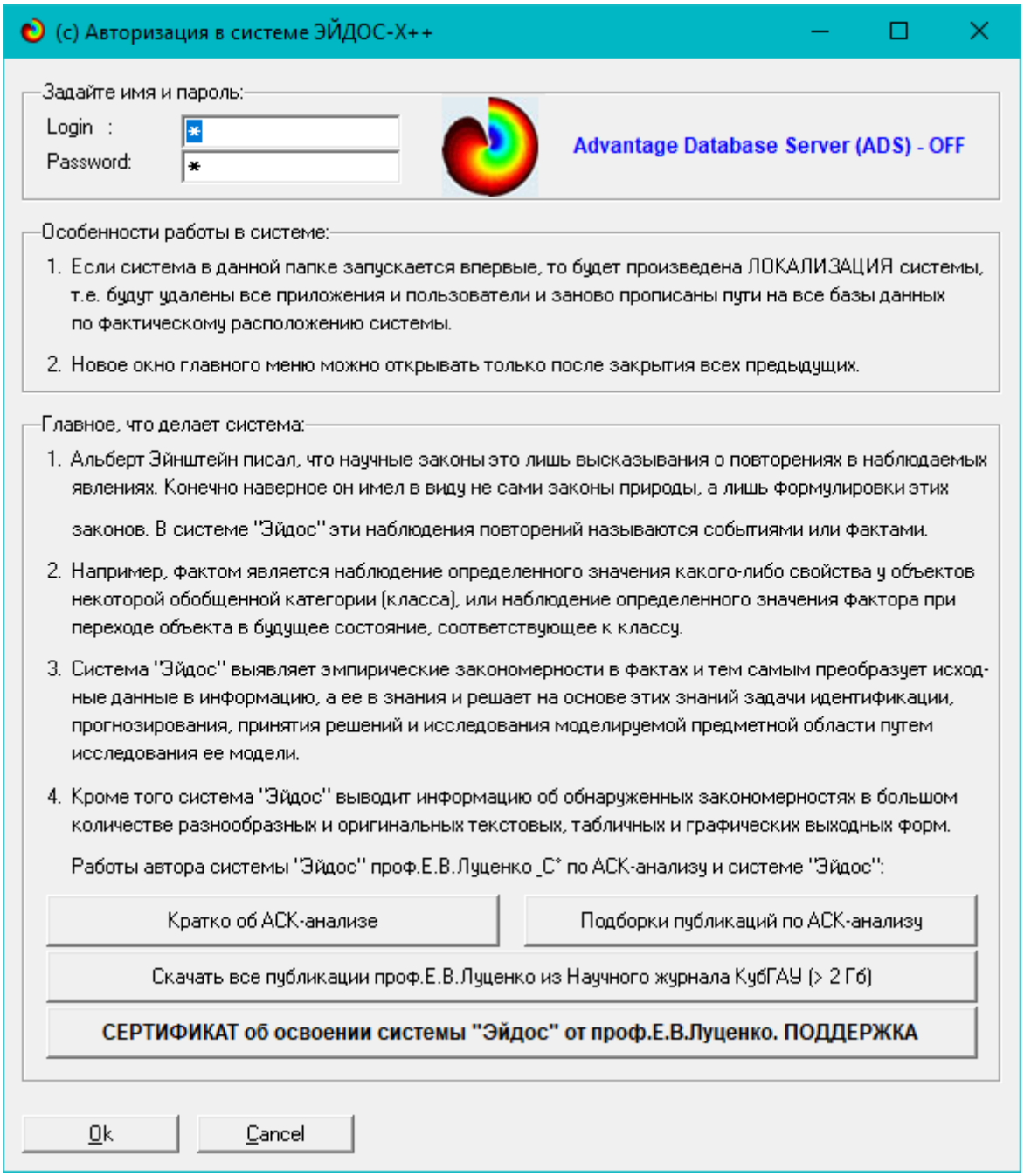
Task-5. Choosing the Most Reliable Model

As the current model for solving the problem of identification (classification) in mode 5.6, we set the model Inf3 [1].

Task-6. Solution of the problem of identification (classification)

Information source about the scientific articles of the author published in the Scientific Journal of KubSAU for 20 years of his work from 2003 to 2023 is the journal itself: http://ej.kubagro.ru/a/viewaut.asp?id=11, as well as RSCI: https://elibrary.ru/author_items.asp?authorid=123162 and the author's website: http://lc.kubagro.ru/aidos/_Aidos-X.htm.

However, downloading articles from these sources for manual analysis one by one is extremely inconvenient and time consuming, especially if there are a lot of them. Therefore, in the intellectual system "Eidos", which is currently a software tool for ASC-analysis, in mode 1.1, the ability to download the full texts of all the author's publications from the Scientific Journal of KubSAU (Figure 5) is implemented:



Drawing5- The first screen form of the "Eidos" system (1 of 4 options) with a button for downloading the full texts of all the author's publications from the Scientific Journal of KubSAU

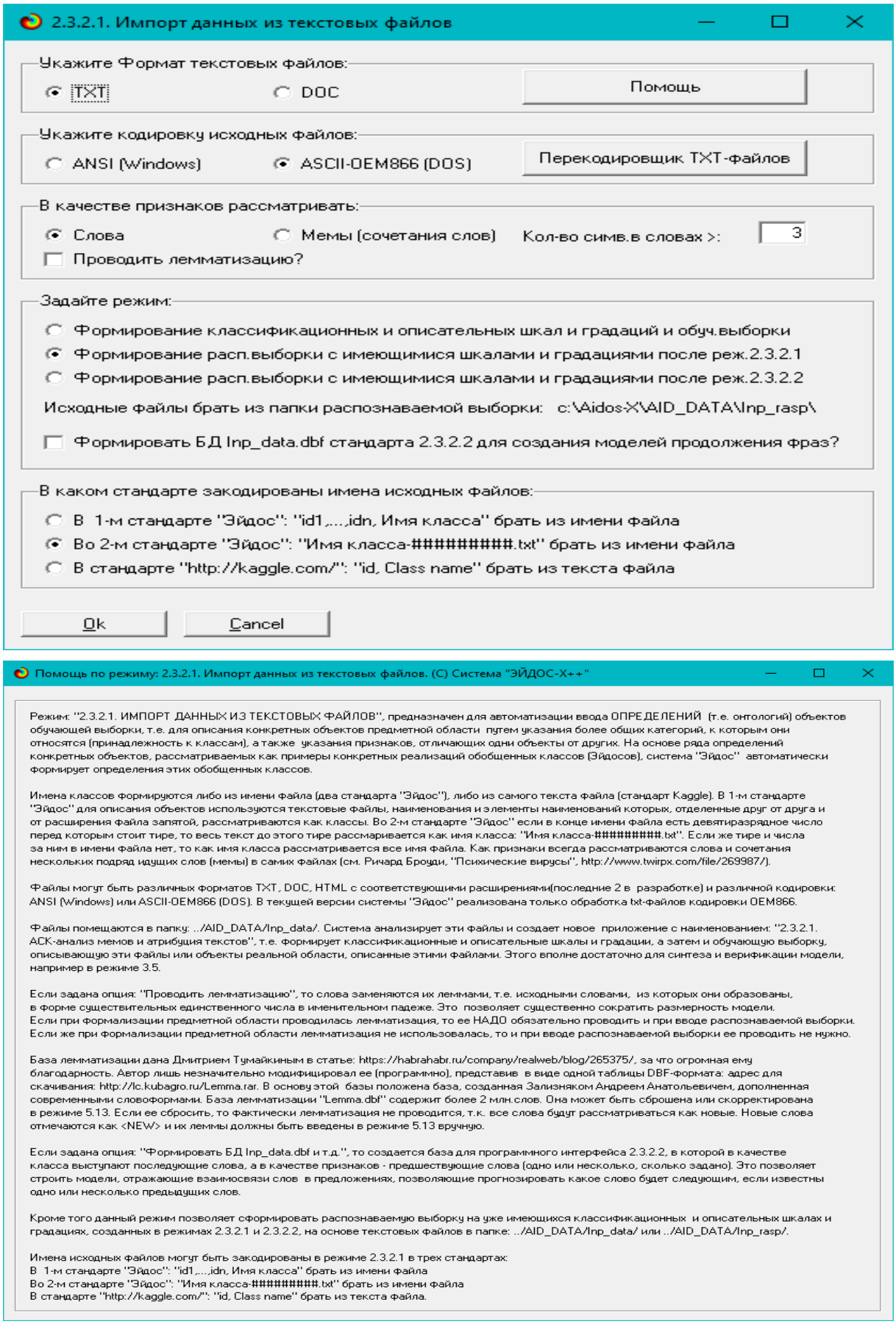
After downloading the publications for input into the Eidos system, they were supplemented with some monographs and tutorials (resulting in 313 files of scientific papers), and then converted from doc (x) format to DOS-TXT format using a small written[1]in Python converter, the source code of which is given below. This conversion process took several minutes.

[1]author

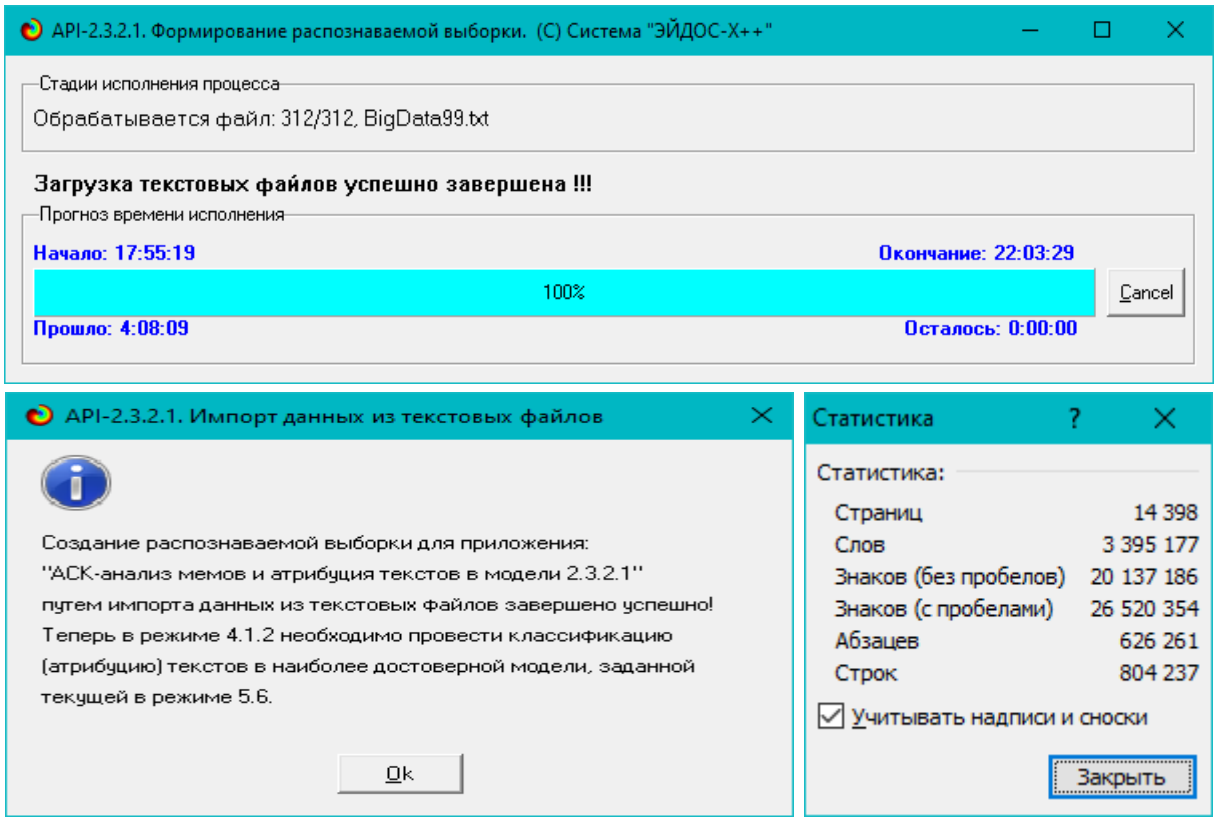
```
============================================================
import os
from docx import Document
import win32com.client

def convert_doc_to_txt(doc_path, txt_path):
    word_app = win32com.client.Dispatch("Word.Application")
    word_app.Visible = False
    doc = word_app.Documents.Open(doc_path)
    doc.SaveAs(txt_path, FileFormat=7)
    doc.Close()
    word_app.Quit()

def batch_convert_to_txt(doc_directory, txt_directory):
    doc_files = [f for f in os.listdir(doc_directory) if f.endswith('.doc') or f.endswith('.docx')]
    total_files = len(doc_files)
    processed_files = 0

    for file_name in doc_files:
        doc_path = os.path.join(doc_directory, file_name)
        txt_path = os.path.join(txt_directory, os.path.splitext(file_name)[0] + '.txt')

        try:
            if file_name.endswith('.docx'):
                doc = Document(doc_path)
                text = ' '.join([paragraph.text for paragraph in doc.paragraphs])
                with open(txt_path, 'w', encoding='utf-8') as txt_file:
                    txt_file.write(text)
            elif file_name.endswith('.doc'):
                convert_doc_to_txt(doc_path, txt_path)

            processed_files += 1
            print(f'Преобразование файла {processed_files}/{total_files}: {file_name}')
        except Exception as e:
            print(f'Произошла ошибка при преобразовании файла {file_name}: {str(e)}')

    print('Преобразование завершено.')

# Укажите путь к директории с файлами .doc и .docx
doc_directory = 'C:/4/'

# Укажите путь к директории, куда сохранить текстовые файлы
txt_directory = 'C:/4/'

batch_convert_to_txt(doc_directory, txt_directory)
============================================================
```

DOS-TXT publication files were recoded to OEM866 encoding in an offline converter: https://anton-pribora.ru/recoder/, and then entered into the Eidos system in the automated programming interface API-2.3.2.1 (Figure 6).

The process of entering 313 publications of the author into the Eidos system took about 4 hours in total (Figure 7).



Drawing6– Screen forms API-2.3.2.1 of the Eidos system



Drawing7– Screen forms API-2.3.2.1 of the Eidos system

It would seem that the process of encoding the source data lasted quite a long time. But it must be taken into account that the total volume of source text files in the DOS-TXT format is very large and amounted to about 27 MB, which is 24150 pages in 16th Times New Roman font, 3395177 words, 26520364 characters, which approximately corresponds to the volume of 40 monographs of 600 sheets each. These input data parameters were set using the ALLTXT.TXT file, which was obtained by combining all 313 DOS-TXT input files into one file with the command: "COPY *.TXT ALLTXT.TXT".

As a result, we get a recognizable sample (Figures 8).

The results of solving problem 1 are described in detail in [13, 14] of the source [1].

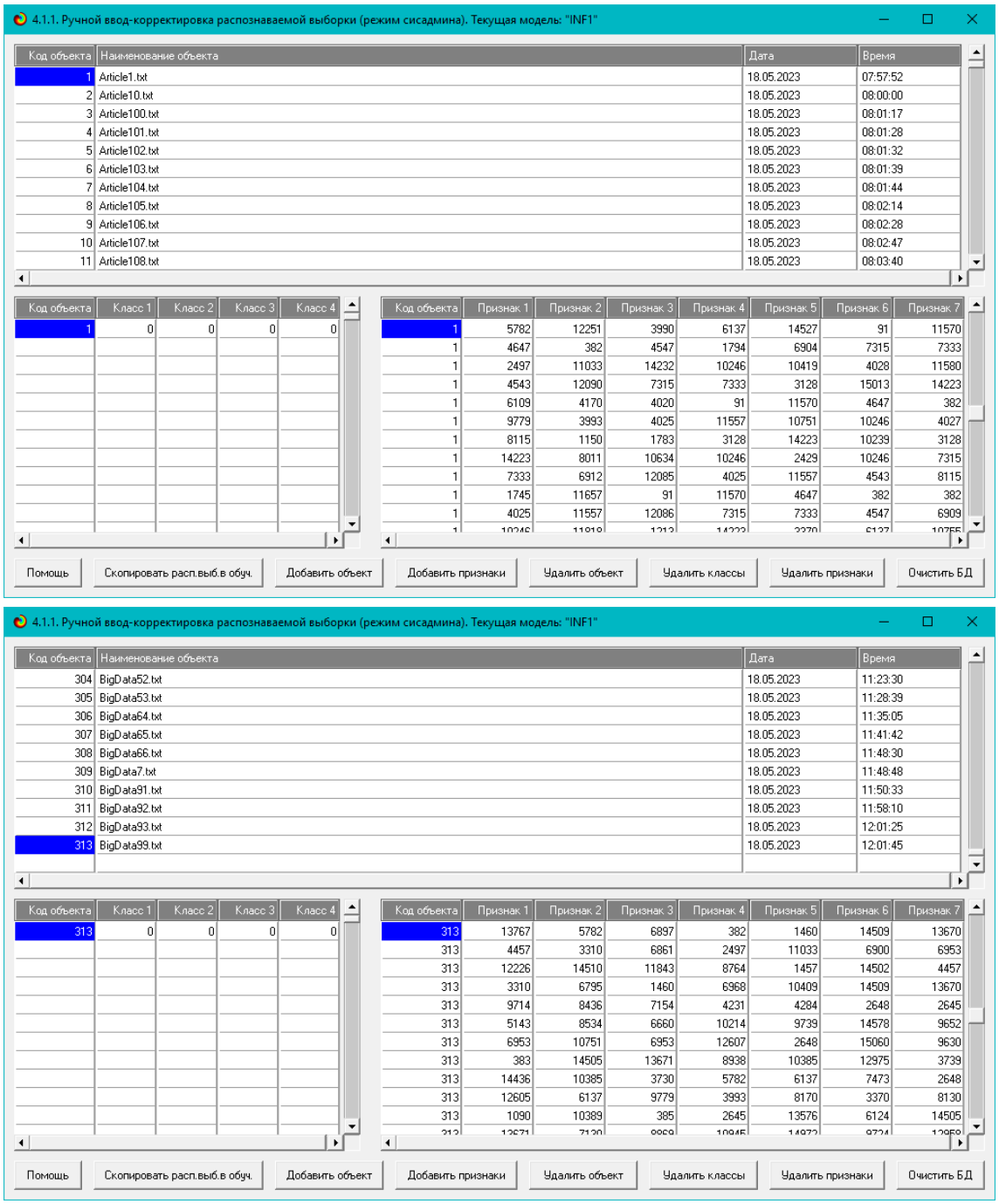
To compare 313 publications with passports of scientific specialties of the HAC RF of the new nomenclature according to their texts, we will first launch mode 5.6 to set the system-cognitive model in which we will do this (Inf3 SC-model) (Figure 9), and then mode 4.1.2 (figure 10).

It should be noted that a quantitative comparison of each of the 313 articles published in the Scientific Journal of KubSAU over 20 years of its work with 361 classes corresponding to the scientific specialties of the HAC RF of the new nomenclature, according to 15101 signs (words) was carried out by the Eidos system on a graphic processor (GPU) ASUS GeForce GTX770 graphics cards with NVIDIA GK104 graphics processor with 1536 shader processors in 1

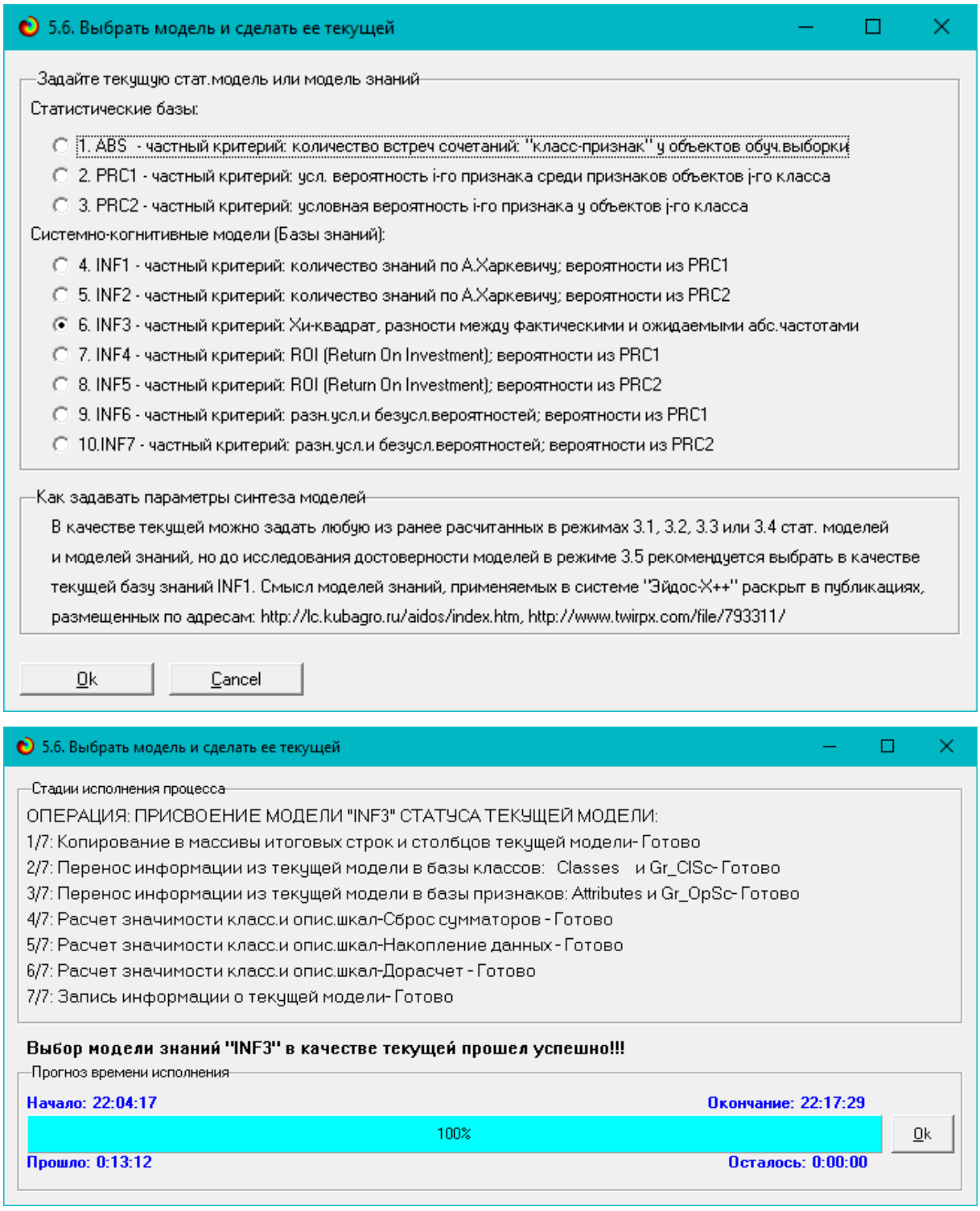
minute 43 seconds. According to the author, this is a good result, because obtaining it required

$$313 * 361 * 15101 = 1706307293$$

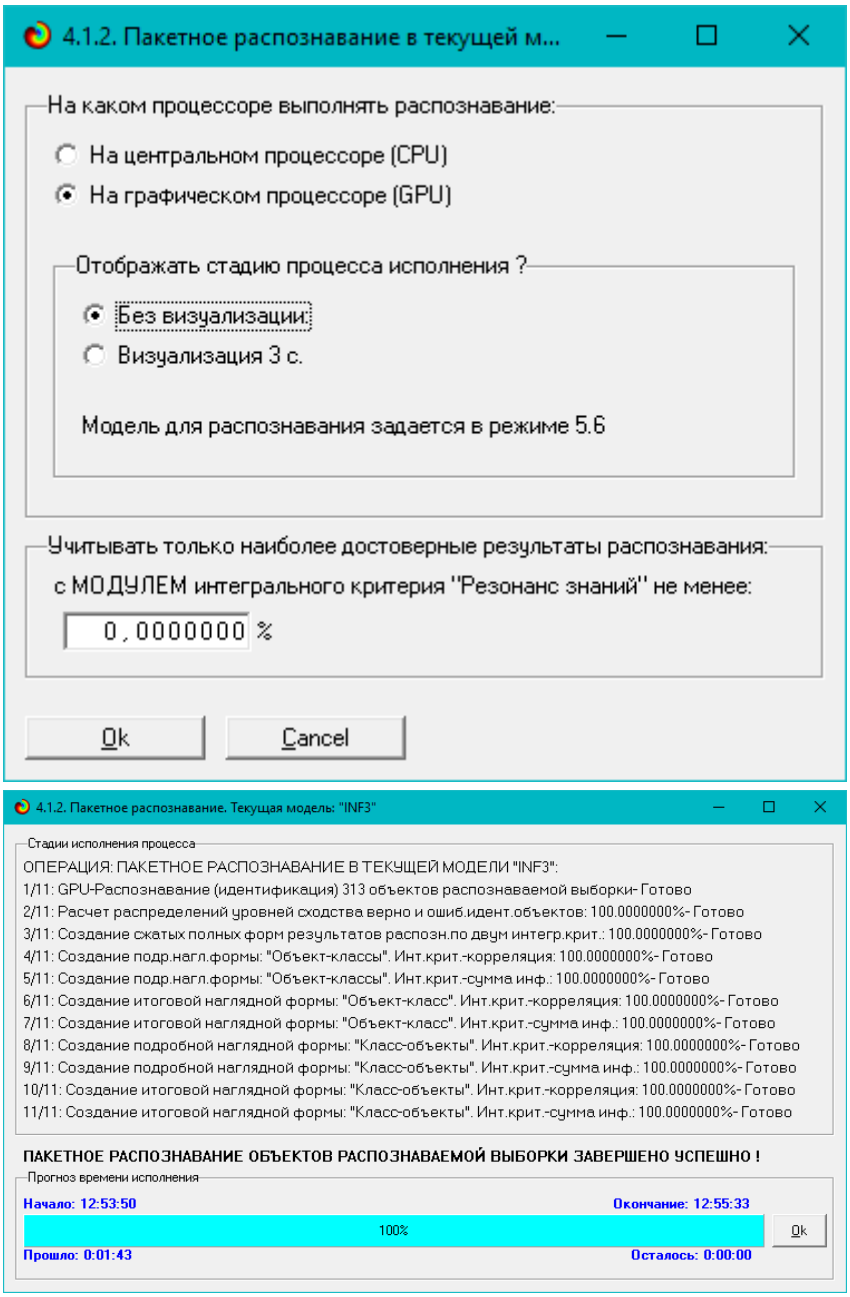
summation of products and calculation of 11 output forms based on the results of recognition, moreover, the output forms were calculated on the central processor (CPU i7) and 99.9% of the time was spent on calculating the output forms.



Drawing8– Screen forms of the recognizable sample (fragment)



Drawing9– Screen forms of mode 5.6 of the Eidos system



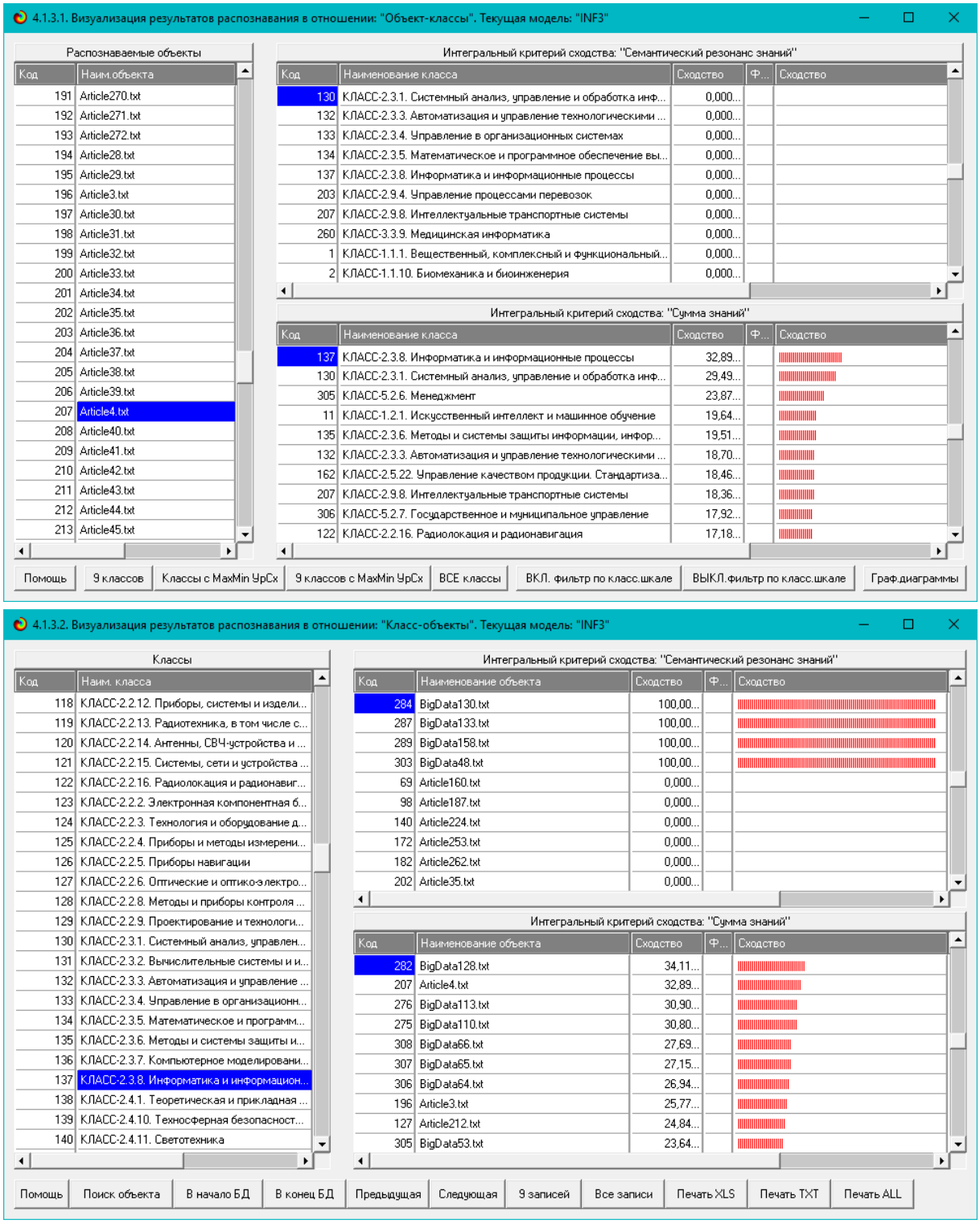
Drawing10– Screen forms of mode 4.1.2 of the Eidos system

Some classification results are shown in figures 11, 12 and tables 2 and 3.

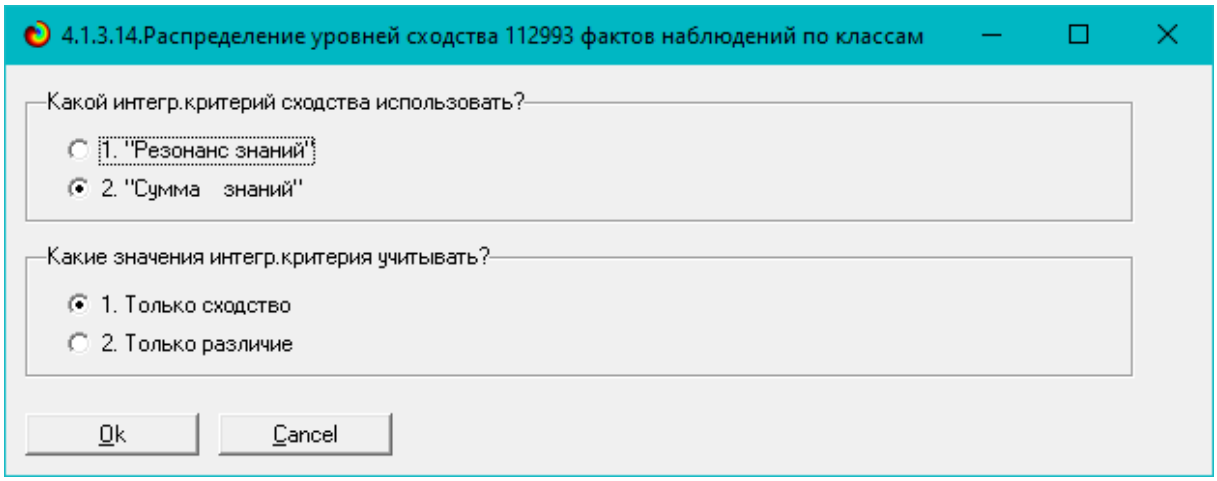
Both output forms in the upper right window show the results when using the integral criterion "Knowledge Resonance", and in the lower window - the integral criterion: "sum of knowledge".

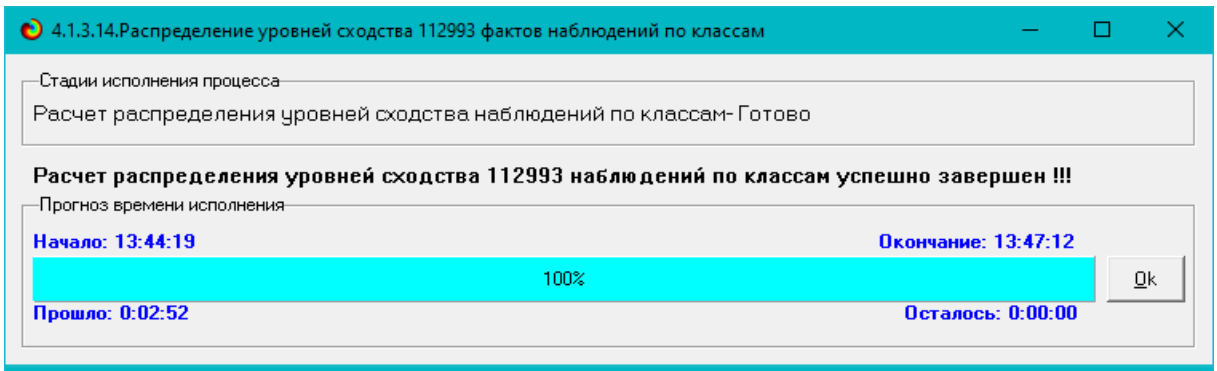
Now let's consider the distribution of the author's publications according to the scientific specialties of the HAC RF of the new nomenclature. To obtain this distribution, let's switch to mode 4.1.3.14. Figures 12 show screen forms of this mode. First, a screen form for setting the operation parameters of this mode is shown, then a form that displays the stage of the execution process, the forecast of its completion time. Instead of describing this mode, its help is given, where everything is explained. At the end, there are two screen forms with the

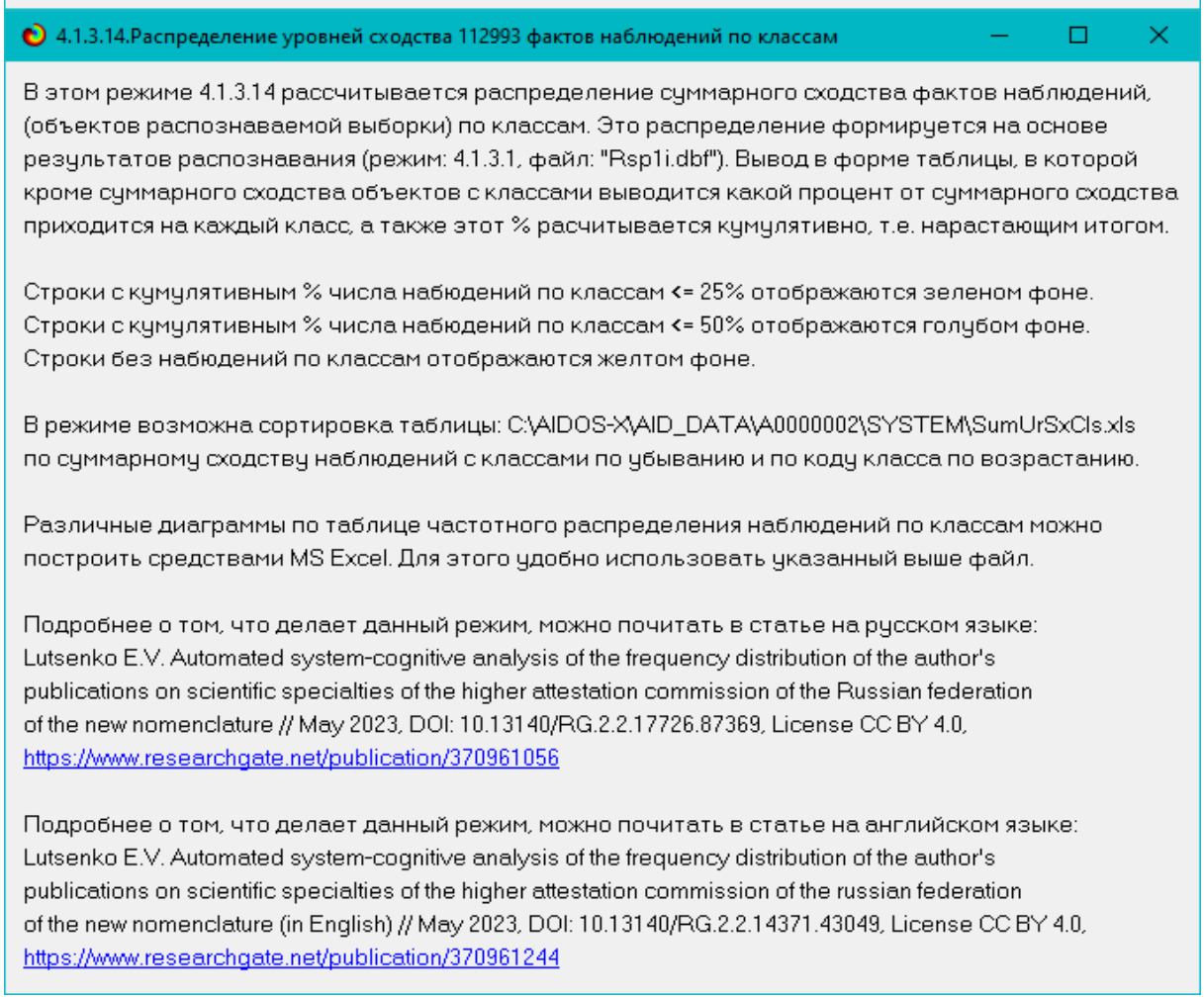
results of the calculation of the distribution of publications of this author by scientific specialties of the HAC RF, obtained by actually comparing the texts of publications with the texts of passports of scientific specialties.

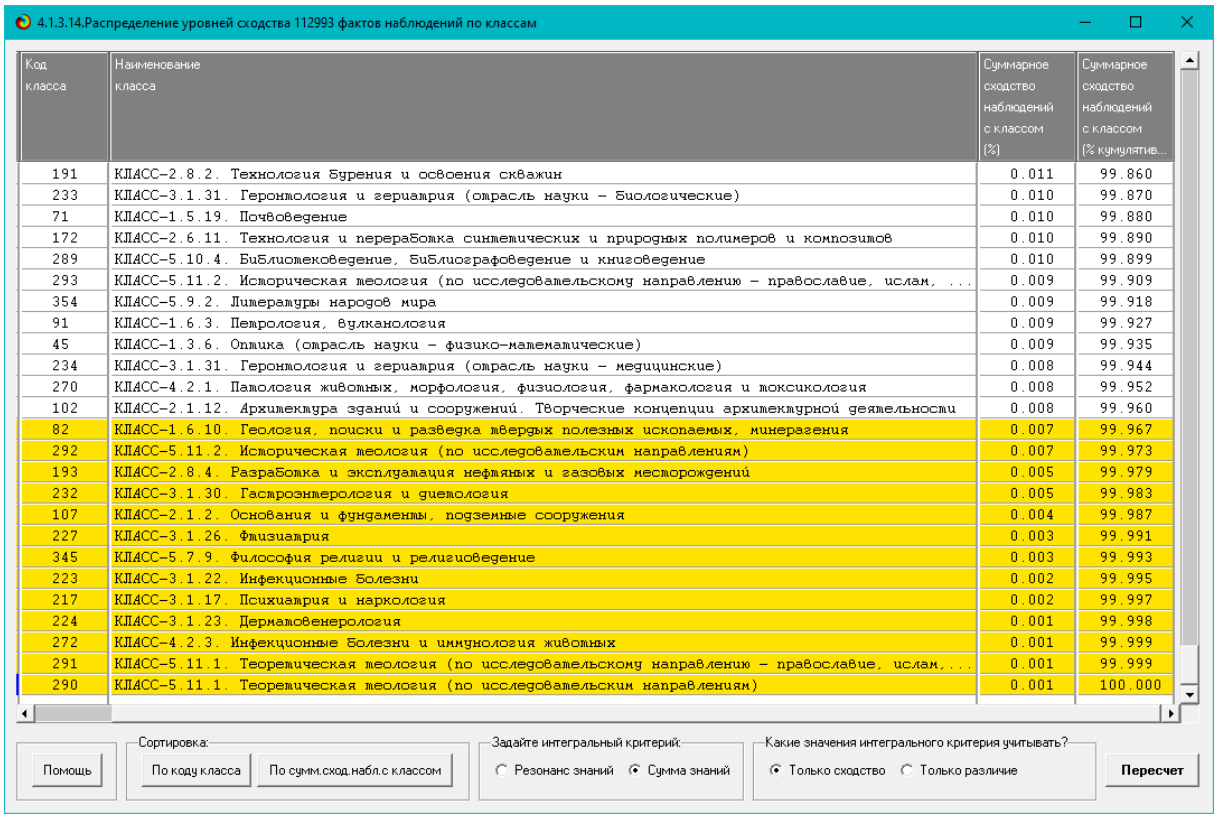


Drawing11– Examples of screen forms with detailed results
(The results of solving problem 1 are described in detail in [13, 14] of the source [1])


4.1.3.14.Распределение уровней сходства 112993 фактов наблюдений по классам
Какой интегр.критерий сходства использовать?
1. "Резонанс знаний"
2. "Сумма знаний"
Какие значения интегр.критерия учитывать?
1. Только сходство
2. Только различие
Ok
Cancel


4.1.3.14.Распределение уровней сходства 112993 фактов наблюдений по классам
Стадии исполнения процесса
Расчет распределения уровней сходства наблюдений по классам- Готово
Расчет распределения уровней сходства 112993 наблюдений по классам успешно завершен !!!
Прогноз времени исполнения
Начало: 13:44:19
Окончание: 13:47:12
100%
Ok
Прошло: 0:02:52
Осталось: 0:00:00


4.1.3.14.Распределение уровней сходства 112993 фактов наблюдений по классам
В этом режиме 4.1.3.14 рассчитывается распределение суммарного сходства фактов наблюдений, (объектов распознаваемой выборки) по классам. Это распределение формируется на основе результатов распознавания (режим: 4.1.3.1, файл: "Rsp1i.dbf"). Вывод в форме таблицы, в которой кроме суммарного сходства объектов с классами выводится какой процент от суммарного сходства приходится на каждый класс, а также этот % расчитывается кумулятивно, т.е. нарастающим итогом.
Строки с кумулятивным % числа набюдений по классам <= 25% отображаются зеленом фоне.
Строки с кумулятивным % числа набюдений по классам <= 50% отображаются голубом фоне.
Строки без набюдений по классам отображаются желтом фоне.
В режиме возможна сортировка таблицы: C:\AIDOS-X\AID_DATA\A0000002\SYSTEM\SumUrSxCls.xls по суммарному сходству наблюдений с классами по убыванию и по коду класса по возрастанию.
Различные диаграммы по таблице частотного распределения наблюдений по классам можно построить средствами MS Excel. Для этого удобно использовать указанный выше файл.
Подробнее о том, что делает данный режим, можно почитать в статье на русском языке:
Lutsenko E.V. Automated system-cognitive analysis of the frequency distribution of the author's publications on scientific specialties of the higher attestation commission of the Russian federation of the new nomenclature // May 2023, DOI: 10.13140/RG.2.2.17726.87369, License CC BY 4.0,
https://www.researchgate.net/publication/370961056
Подробнее о том, что делает данный режим, можно почитать в статье на английском языке:
Lutsenko E.V. Automated system-cognitive analysis of the frequency distribution of the author's publications on scientific specialties of the higher attestation commission of the russian federation of the new nomenclature (in English) // May 2023, DOI: 10.13140/RG.2.2.14371.43049, License CC BY 4.0,
https://www.researchgate.net/publication/370961244



Drawing12– Screen forms of mode 4.1.3.14 of the Eidos system (fragments)

Table 2 contains the same information as in the last two screen forms of Figure 12, but not fragmentarily, but completely, for all specialties of scientists of the HAC RF of the new nomenclature.

According to table 2, a pie chart is built, shown in Figure 13.

Table2– The results of the classification of texts of articles on scientific specialties of the HAC RF in the Inf3 SC-model (the number of articles on specialties, fragment)

No.	Class Code	Name of the class (scientific specialty of the HAC RF of the new nomenclature)	Amount of similarity in %	Amount of similarity in %, cumulatively
1	137	CLASS-2.3.8. Informatics and information processes	4.098	4.098
2	130	CLASS-2.3.1. System analysis, information management and processing, statistics	3.158	7.256
3	135	CLASS-2.3.6. Information security methods and systems, information security	2.903	10.158
4	305	CLASS-5.2.6. Management	2.491	12.649
5	260	CLASS-3.3.9. Medical Informatics	2.348	14.997
6	eleven	CLASS-1.2.1. Artificial intelligence and machine learning	2.319	17.315
7	118	CLASS-2.2.12. Devices, systems and products for medical purposes	2.078	19.394
8	13	CLASS-1.2.3. Theoretical computer science, cybernetics	1.919	21.313
9	306	CLASS-5.2.7. State and municipal administration	1.886	23.199
10	119	CLASS-2.2.13. Radio engineering, including television systems and devices	1.818	25.017
eleven	134	CLASS-2.3.5. Mathematical and software support for computing systems, complexes and computer	1.723	26.740
12	104	CLASS-2.1.14. Life cycle management of construction objects	1.656	28.396
13	229	CLASS-3.1.28. Hematology and blood transfusion	1.575	29.971
14	207	CLASS-2.9.8. Intelligent Transport Systems	1.520	31.491
15	133	CLASS-2.3.4. Management in organizational systems	1.517	33.008
16	225	CLASS-3.1.24. Neurology	1.469	34.477
17	162	CLASS-2.5.22. Product quality management. Standardization. Organization of production	1.445	35.922
18	301	CLASS-5.2.2. Mathematical, statistical and instrumental methods in economics	1.294	37.216
19	122	CLASS-2.2.16. Radar and radio navigation	1.279	38.495
20	299	CLASS-5.12.4. Cognitive modeling	1.258	39.753
21	203	CLASS-2.9.4. Transportation process management	1.221	40.974
22	132	CLASS-2.3.3. Automation and control of technological processes and production	1.158	42.132
23	302	CLASS-5.2.3. Regional and sectoral economy	1.147	43.279
24	121	CLASS-2.2.15. Telecommunication systems, networks and devices	1.141	44.420
25	156	CLASS-2.5.16. Dynamics, ballistics and motion control of aircraft	1.127	45.547
26	131	CLASS-2.3.2. Computing systems and their elements	0.934	46.481
27	208	CLASS-2.9.9. Logistic transport systems	0.881	47.362
28	322	CLASS-5.4.7. Sociology of management	0.870	48.232
29	12	CLASS-1.2.2. Mathematical modeling, numerical methods and software packages	0.864	49.096
thirty	117	CLASS-2.2.11. Information-measuring and control systems	0.862	49.958
31	106	CLASS-2.1.16. Labor protection in construction	0.764	50.722
32	155	CLASS-2.5.15. Thermal, electric rocket engines and power plants of aircraft	0.749	51.471
33	142	CLASS-2.4.3. Power industry	0.726	52.197
34	296	CLASS-5.12.1. Interdisciplinary research on cognitive processes	0.722	52.919
35	126	CLASS-2.2.5. Navigation devices	0.721	53.640
36	144	CLASS-2.4.5. Energy systems and complexes	0.711	54.351
37	297	CLASS-5.12.2. Interdisciplinary Brain Research	0.707	55.057
38	16	CLASS-1.3.1. Space physics, astronomy (branch of science - physical and mathematical)	0.705	55.763
39	202	CLASS-2.9.3. Railway rolling stock, train traction and electrification	0.705	56.468
40	112	CLASS-2.1.7. Technology and organization of construction	0.685	57.153
41	136	CLASS-2.3.7. Computer modeling and design automation	0.681	57.834
42	325	CLASS-5.5.3. Public administration and sectoral policies	0.677	58.512
43	219	CLASS-3.1.19. Endocrinology	0.665	59.177
44	15	CLASS-1.3.1. Space physics, astronomy (branch of science - technical)	0.645	59.822
45	3	CLASS-1.1.2. Differential Equations and Mathematical Physics	0.644	60.466
46	316	CLASS-5.4.1. Theory, methodology and history of sociology	0.639	61.105
		* * * * * * * *		
349	82	CLASS-1.6.10. Geology, prospecting and exploration of solid minerals, minerageny	0.007	99.967
350	292	CLASS-5.11.2. Historical theology (in research areas)	0.007	99.973
351	193	CLASS-2.8.4. Development and operation of oil and gas fields	0.005	99.979
352	232	CLASS-3.1.30. Gastroenterology and Dietetics	0.005	99.983
353	107	CLASS-2.1.2. Bases and foundations, underground structures	0.004	99.987
354	227	CLASS-3.1.26. Phthisiology	0.003	99.991
355	345	CLASS-5.7.9. Philosophy of Religion and Religious Studies	0.003	99.993
356	223	CLASS-3.1.22. infectious diseases	0.002	99.995
357	217	CLASS-3.1.17. Psychiatry and Narcology	0.002	99.997
358	224	CLASS-3.1.23. Dermatovenereology	0.001	99.998
359	272	CLASS-4.2.3. Infectious Diseases and Animal Immunology	0.001	99.999
360	291	CLASS-5.11.1. Theoretical theology (in the research direction - Orthodoxy, Islam, Judaism)	0.001	99.999
361	290	CLASS-5.11.1. Theoretical theology (in research areas)	0.001	100.000

From Figure 13 and Table 2 we see that:

– about a quarter of all articles published in the journal refer to only 9 specialties (they are highlighted in the beginning of Table 2 with a light green background), and half are in 30 specialties (at the beginning of Table 2 they are highlighted in blue).

– for the remaining 331 specialties, all taken together, about half of the total number of articles was published (in table 2 without a background), and for

13 specialties not a single article was published at all (at the end of the table 4 are highlighted in orange).

Drawing13– Frequency distribution of the author's publications on scientific specialties of the HAC RF of the new nomenclature in the Inf3 SC model

If we compare the distribution of the author's publications by scientific specialties of the HAC RF, shown in the pie chart of Figure 13, with the distribution of publications by subject in the RSCI, shown in Figure 1, then it can be seen that the distribution in Figure 13 is much more detailed, and we add, much better substantiated, than in figure 1.

Such a distribution of articles by scientific specialties has developed because all articles published in issues from 58 to 134 are "Wakov" in all specialties of scientists. During this period, the journal was multidisciplinary.

But since February 12, 2019 (from issue 146), our journal is no longer multidisciplinary, because. entered the List of the HAC RF only in the following 5 specialties: 05.20.01, 06.01.01, 06.01.05, 06.02.02, 06.02.10.

Since February 15, 2023 (from issue 186), the journal is included in the List of the HAC RF in the following specialties:

4.1.1. General farming and crop production;

4.1.2. Breeding, seed production and biotechnology;

4.1.3. Agrochemistry, agrosoil science, plant protection and quarantine;

4.1.4. Horticulture, vegetable growing, viticulture and medicinal culture;

4.3.1. Technologies, machines and equipment for the agro-industrial complex;

5.2.2. Mathematical, statistical and instrumental methods in economics.

The lists of the HAC RF valid for various periods of the journal are located at: https://phdru.com/publications/perechenvak/#section1.

4. Discussion

Goal of the work consists in the development of an intelligent system for the automated classification of publications according to the scientific specialties of the HAC RF of the new nomenclature. To achieve this goal, the well-known method of artificial intelligence was applied: automated system-cognitive analysis and its software tools - the intellectual system "Eidos".

As a result of work an intelligent cloud-based Eidos application has been created, placed in full open free access, which can be successfully used by everyone to achieve the goal with their texts. The paper provides a numerical example of achieving the set goal, based on the author's real publications in the Scientific Journal of KubSAU for 20 years of his work: from 2003 to 2023, with the addition of several more myographies and teaching aids. The results obtained are in good agreement with those previously obtained by the author [1] and the works of other authors in the field of intelligent text processing.

The relevance of the work is due to the fact that for the new nomenclature of scientific specialties of the HAC RF, a really working intelligent system for classifying publications, which is in full open free access, was created for the first time.

5. Conclusion, conclusions and recommendations

Thus, based on the results of the research, we can make a reasonable conclusion that the created intelligent cloud-based Eidos application provides the classification of texts of scientific publications: articles, monographs, textbooks, dissertations, etc., according to the scientific specialties of the HAC RF of the new nomenclature.

Practical significance of the conducted research and development is that everyone can use it to solve the problem formulated in the work, achieve the goal and objectives.

This is facilitated by the fact that any Internet user can download from the author's website at the link:http://lc.kubagro.ru/Aidos-X.exeinstallation of the Eidos system, and then in the 1.3 mode download and install this intelligent cloud Eidos application (it has No.**389**) and study it according to this publication or simply use it to classify your texts according to the scientific specialties of the HAC RF of the new nomenclature.

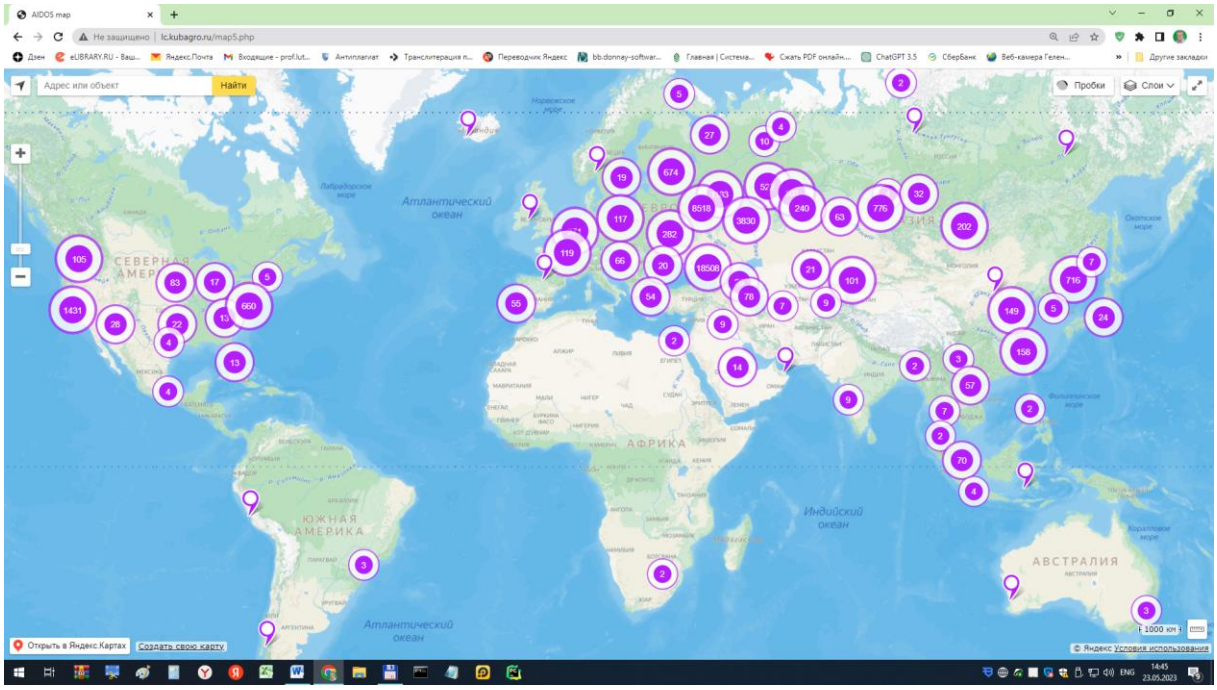
After installing this application in the folder: c:\Aidos-X\AID_DATA\Inp_data there will be an archive: c:\Aidos-X\AID_DATA\Inp_rasp.rar with files of scientific publications. These files must be unzipped to the folder: c:\Aidos-X\AID_DATA\Inp_rasp.

Prospects We see the continuation of this work in the application of the intelligent cloud Eidos application No.**389,**described in this paper and in [2],for the classification of articles in forthcoming issues of various scientific journals, and not just the Scientific Journal of KubSAU, as well as for its application for the classification of texts of monographs, textbooks, dissertations, etc. on

scientific specialties of the HAC RF of the new nomenclature.

It is also planned to analyze the publication activity of the author of other authors using the intellectual cloud Eidos application described in it No.**389**. It is clear that any user of the Eidos system can do this independently at any time and according to other authors. At the same time, the works of authors can be in any language. The volume of processed texts is not limited by any artificial quotas and limits on tokens, and is limited only by the computing resources of computers.

The author also plans to develop a new version of the Eidos system in a modern programming language and a wider use of the Eidos system and intelligent applications developed with its use, although there are still a lot of them now: the Eidos system is quite widely used all over the world (Figure 14):



Drawing14– – Screen form with cartographic visualization of Eidos system launches in the world for the period from 12/09/2016 to 05/23/2023.

Bibliography

1. Lutsenko E.V. A selection of publications by Prof. E.V. Lutsenko on automated system-cognitive analysis of textshttp://lc.kubagro.ru/aidos/Works_on_ASC-analysis_of_texts.htm